Remarks

Reconsideration of this application as amended is respectfully requested.

Claim 36 stands rejected under 35 U.S.C. §112, second paragraph.

Claims 20-24, 27-31, and 36-38 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,933,853 of *Takagi* ("*Takagi*") and U.S. Patent No. 6,243,795 of *Yang* ("*Yang*").

Claims 25-26, and 32-33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Takagi* and *Yang* and U.S. Patent no. 6,253,290 of *Nakamoto* ("*Nakamoto*").

Claims 34-35 stand rejected under 35 U.S.C. §103(a) as being unpatentable over *Takagi* and *Yang* and U.S. Patent no. 6,324,632 of *McIntosh-Smith* ("*McIntosh-Smith*").

The Examiner has rejected claim 36 under 35 U.S.C. §112, second paragraph, and has stated that the difference between a demote operation and a write operation is unclear. Applicant submits that amended claim 36 does not recite a demote operation.

The Examiner has rejected claims 20-24, 27-31, and 36-38 under 35 U.S.C. §103(a) as being unpatentable over *Takagi* and *Yang*. Applicant respectfully submits, however, that amended claim 20 is not obvious in view of *Takagi* and *Yang*. Amended claim 20 is a method for exclusive caching between a storage system cache of a storage system and a host cache of a host system that includes the limitations

> providing the host system with access to the information by reading the information from the storage system cache and then storing the information in the host cache and evicting the information from the storage system cache <u>such that the information does not occupy space in both the host and storage system caches</u>;
>
> demoting the information from the host cache to the storage system cache if the information is clean when evicted from the host cache such that the information does not occupy space in both the host and storage system caches.

(Amended claim 20) (emphasis added).

Takagi does not disclose or suggest exclusive caching of a set of information by reading the information from a storage system cache and then storing the information in a host cache and evicting the information from the storage system cache such that the information does not occupy space in both the host and storage system caches as claimed in amended claim 20. Instead, *Takagi* teaches reading data from a cache HDD 5 disk cache (*Takagi*, col. 4, lines 34-36) and storing it in a high level cache memory 4 (*Takagi*, col. 4, lines 31-33) such that the information occupies space in both the high level cache memory 4 and the cache HDD 5 (*Takagi*, col. 9, lines 24-54).

For example, in describing a process of reading a logical block of data *Takagi* teaches that

> When the specified logical block does not exist in the cache memory 4,...an empty block is secured in the cache memory 4..., thereby obtaining a cache memory block (CBN).

(*Takagi*, col. 9, lines 34-38) and that

> Then, the cache HHD block management table 36 is searched to check to see if the specified logical block exists in the cache HDD 5. If it exists, the data is read from the cache HDD block (HBN) in the cache HDD 5 and stored in the cache memory block (CBN).

(*Takagi*, col. 9, lines 39-43) but does not teach or suggest that the logical block is evicted from the cache HDD 5 after being stored in the cache memory 4. As a consequence, the same logical block clutters up both the cache HDD 5 and the cache memory 4 in the system of *Takagi*. In contrast, the method of amended claim 20 avoids cluttering both a storage system cache and a host cache with the same block of information.

Yang does not disclose or suggest exclusive caching of a set of information by reading the information from a storage system cache and then storing the information in a host cache and evicting the information from the storage system cache such that the information does not occupy space in both the host and storage system caches as claimed in amended claim 20. Instead, *Yang* discloses a CPU 12 that reads data from a read cache and a write cache in a storage system (*Yang*, col. 5,

lines 16-19) but does not teach that the read data is evicted from the storage system cache as claimed in amended claim 20.

Amended claim 20 includes the further limitations

> providing the host system with access to the information by reading the information from the storage system cache and then storing the information in the host cache and evicting the information from the storage system cache such that the information does not occupy space in both the host and storage system caches;
>
> demoting the information from the host cache to the storage system cache if the information is clean when evicted from the host cache such that the information does not occupy space in both the host and storage system caches.

(Amended claim 20) (emphasis added).

Takagi and *Yang* do not disclose or suggest exclusive caching by demoting a set of information from a host cache to a storage system cache if the information is clean when evicted from the host cache as claimed in amended claim 20. Instead, *Takagi* teaches discarding information evicted from a host cache if it is clean (*Takagi*, col. 5, lines 22-29) and *Yang* discloses only storage system caching. (*Takagi*, col. 2, lines 14-16). Moreover, the storage system cache of *Yang*, like the high level cache of *Takagi*, discards evicted data when it is clean. (*Yang*, col. 4, lines 32-34).

It is therefore respectfully submitted that the method of amended claim 20 that provides exclusive caching of a set of information such that the information does not occupy space in both host and storage system caches is not obvious in view of the teaching of *Takagi* and *Yang*.

Given that amended claims 21-26 depend from amended claim 20, it is submitted that amended claims 21-26 are not obvious in view of *Takagi* and *Yang*.

Nakamoto discloses a multi-processor system that avoids write monitoring of a cache (*Nakamoto*, col. 3, lines 60-65) rather than exclusive caching of a set of information such that the information does not occupy space in both host and storage system caches as claimed in amended claim 20.

McIntosh-Smith discloses a partitioning of a cache

(*McIntosh-Smith*, col. 1, line 66 through col. 2, line 3) rather than exclusive caching of a set of information such that the information does not occupy space in both host and storage system caches as claimed in amended claim 20.

It is therefore respectfully submitted that amended claims 21-26 that depend from amended claim 20 are not obvious in view of *Takagi* and *Yang* and *Nakamoto* and *McIntosh-Smith*.

Applicant also submits that amended claim 27 is not obvious in view of the references cited by the Examiner. Amended claim 27 is a computer system that includes limitations similar to the limitations of amended claim 20. Therefore, the remarks stated above with respect to amended claim 20 also apply to amended claim 27.

Given that amended claims 28-38 depend from amended claim 27, it is submitted that amended claims 28-38 are not obvious in view of the references cited by the Examiner.

It is respectfully submitted that in view of the amendments and arguments set forth above, the applicable objections and rejections have been overcome.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 08-2025 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: 10-29-03 By: _____

Paul H. Horstmann
Reg. No.: 36,167